

THE MAGAZINE

# QUANTA

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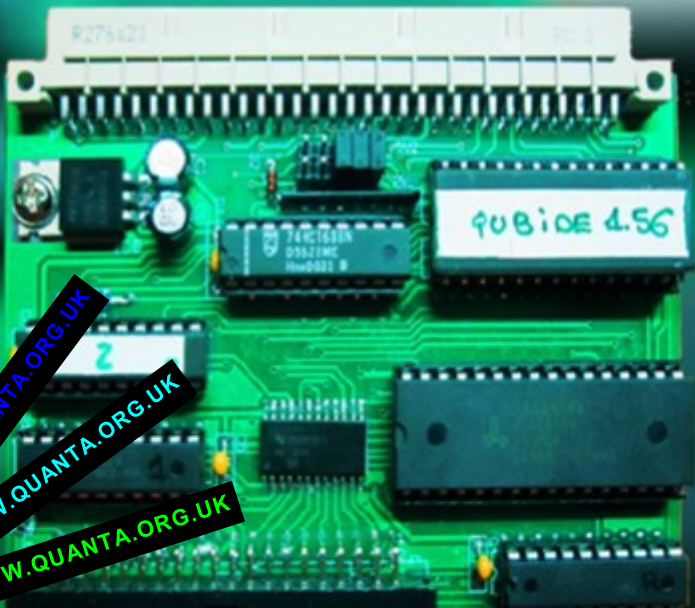
QL USERS AND TINKERERS ASSOCIATION

August September Issue 2013

Is the possibility of a new QUBIDE becoming clearer

TURBO now!, George Gwilt gives us the rundown

Colour Part 2, more on the displays of QL systems



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30  
years

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QUALITY SINCE 1984

## Information on the Association

Membership of QUANTA, the independent QL user group, is by annual subscription. The Membership Secretary can supply full details. Copies of the association's constitution & annual accounts are available from the Secretary. There is an extensive software library and active national subgroups. Details are given in the Member's Guide and in this magazine.

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**COPY DATE for OCT/NOV 2013 ISSUE is: 5th OCT 2013**

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**All Contributions are Welcome**  
**Copy by Email to - [editor@quanta.org.uk](mailto:editor@quanta.org.uk)**

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**I** make no apologies for the content of this editorial for this issue, while I can sing the praises of our extremely small number of contributors, and all that do, I am in every way grateful. I found myself on the verge of yet another rant about copy and submissions. There is already enough information in the magazine for every reader to get 'picture'.

30 years of the QL and QUANTA, hmmm so what other landmark and iconic anniversaries are there this year 2013?

OK, lets assume for a moment the dwindling QUANTA membership mainly started in 1984, that would put people who could afford the £399.99 in their 20s and 30s at best and probably a few much older (I have no data on this, just surmising).

Most QUANTA members will be approaching 60 or 60+, apologies to the younger QUANTA members (by younger I mean less than 50 years of age) and having a QL (unless fluid in the 1980s with high inflation) meant you had to have a TV to use it. If you had a TV then you must of watched at some point Dr Who, well there you have it.

November of this year is the Dr Who 50th anniversary, a big one and as an avid fan my request to all you other QL and Dr Who fans is write a program in time for the next issue with a Dr Who theme, no more than 20 lines.

Otherwise you will have to regenerate following an extermination from my friends the Daleks, I have many and I kid you not.

Happy Programming...

Ed.

If you have QL-related news items that you'd like us to include on this page, please get in touch with News Editor - Dilwyn Jones at [news@quanta.org.uk](mailto:news@quanta.org.uk)

## SMSQmulator v1.20

Version 1.20 of the Java-based QL emulator called SMSQmulator can be downloaded from [www.wlenerz.com/SMSQmulator](http://www.wlenerz.com/SMSQmulator).

Author Wolfgang Lenerz says it's "only useful if you experience sound problems."

List of changes in v1.20:

- SampledSound 1.01 Volume control tries volume then master gain. Popup warning is made configurable.

- Beep 1.02 Volume control tries volume then master gain.

- Warnings 1.02 added warnIfSoundProblem.

- SMSQmulator 1.11 added WARN-ON-SOUND-PROBLEM config item.

- MonitorGui 1.17 "warn if sound problem" config item & supporting code added.

Wolfgang says that the previous version 1.19 had several bug fixes. The screen x size must be a multiple of 8 in all screen modes, there is a new faster QXL.WIN driver, and sound volume may be configured..

M68000K emulation: ADDQ streamlined

SMSQE changes:

iod\_con2\_java16\_block\_asm : xor block calls java

iod\_con2\_java8\_block\_asm : xor block calls java

### Changes in SMSQmulator itself:

SMSQmulator 1.10 xsize must be multiple of 8 for all screen modes ; provides for BEEP volume in ini file ; nicer subwindow/dialog popup locations.

MonitorGui 1.16 screen xsize must be a multiple of 8 when configuring the screen size ; provide for beep volume level.

TrapDispatcher 1.07 name is passed to open trap as an array of bytes ; Aal device drivers adjusted to suit ; implements Trap#5,D0=21 ; provides for sound volume setting ; implements trap#5, d0=22 (set sound).

MC68000Cpu 1.09 screenStopW and screenStopL introduced to stop sprite clipping from overshooting screen end and avoid subtraction when checking addresses.

Screen 1.07 correctly set the dirty flag to false once repainting is done. Don't check for dirty flag when painting component

Screen16 1.02 optimized (I hope!) fillBlock ; implemented xorBlock.

Screen32 1.08 byte-sized reading/writing from/to screen is now allowed ; optimized (I hope!) fillBlock , implemented xorBlock.

WinDriver, WinDrive, WinDir, WinFile, WinSpecialFile : all new.

Monitor 1.07, Beep v. 1.01 and SampledSound 1.00 provide for volume setting.

DriveAssignmentDialog 1.02 window pops up at a nicer location (less mouse movement).

QL50HzInterrupt 1.04 check whether screen is "dirty" is made here, not in the screen paintComponent routine.

As before, SMSQmulator is available in separate versions for Java version 6 and version 7. As ever the advice is “download and run the version for Java 7 first. If this doesn't run on your machine, download the version for java 6 and try that.”

### QPC2 Update

Marcel Kilgus has released a new update of QPC2. Version 3.40 beta 2 “only took 6 years” as Marcel put it in his email!

Marcel writes: “Don't hesitate because it's called a ‘beta’, it's very stable, I only want people to test the new keyboard driver first before calling it a release.”

It includes the latest SMSQ/E v3.16.

New features:

Added new keyboard driver that doesn't rely on DirectX anymore. Now QPC can use the Windows keyboard driver. Much work has been put into this feature to be as compatible as possible, so Marcel hopes it works for all countries and that even KEYROW continues to make some sense. SMSQ/E keyboard tables like the ones created by Clavier will NOT work with this driver, but the old driver is still in there, just select "SMSQ/E" as the keyboard driver in the configuration dialog.

Basic support for floppy disc images. Images can be configured on boot but currently not changed afterwards.

Various bug fixes including a probably more stable screen driver.

Some CPU fixes thanks to George Gwilt.

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Welcome

Quo Vadis Design sells software for the Sinclair Quantum 2 map computer (QL) and variants including a new OS called SMSQ.

The QL is a computer in its 25th year Anniversary.



News

- QVD QL News Blog - keep up to date  
[News Blog](#)  
04/10/2009
- Quo Vadis Design Website Launched  
06/06/2008

FEATURED PRODUCT



BUY NOW!

Software emulations of the QL, now exist which can run on a PC/Mac with Windows/Linux or Mac Operating systems.

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Marcel also asked: “While I'm at it, does anybody still use the fullscreen mode? I'm considering moving away from DirectX completely, which would also get rid of native full screen mode. But in times of LCDs it's probably not that important anymore anyway.”

Registered QPC2 users can get a copy using the download link (you will need your registered QPC2 password to unzip the download): <http://www.kilgus.net/qpc/downloads.html>

### Qubide Clone

Jose Leandro in Spain is a ZX Spectrum user who also has a QL. He came across Jan Polenicek's website at <http://omega.webnode.com/products/product-1/> where a Qubide clone circuit is described.

Using this information he set about building his own Qubide circuit board for use with a Compact Flash memory card adaptor. He documents his work on the speccy.org website at <http://hardware.speccy.org/temp/qubide.html> (in Spanish, but translates well enough for non-Spanish speaker if you copy and paste the text into something like Google Translate website).

His first effort partly worked with a 512K RAM expansion although the Qubide failed from time to time.

Then about a month later Jose wrote:

“The pcb I made give me some little problems (bad solders) that made the interface didn't work all the time. For this reason I've sent

gerber files from prototype 2.0 to a manufacturer. Now I have a new board with professional look. The principal change are the two 74hct646 that now are SMD [Surface Mount Device]. This change has allowed [me to] put the ram chip (dip 32) and extra GAL in the pcb. The pcb is 5mm smaller than prototype1”

Jose says, though, that he is missing software to allow files to be transferred to and from the Qubide-format compact flash card, in other words he is finding it hard to transfer files between the QL and PC as yet. Some users suggested using a serial link for now until suitable software can be found.

Good news though that a Qubide clone has been made. Let us hope that Jose is able to make the circuit boards available now that the original Qubide is no longer available.



*The first version of the Qubide clone*



*Second version*

## Raspberry Pi and Lego?

Urs König writes:

“Got my Raspberry Pi (just the board and a power supply) two weeks ago. Had to do quite a bit of web research to get what I need to start my projects (which are - among others - run QL software on it). Yes, SMSQmulator runs, stable, but is too slow (especially the screen handling) for serious usage. uQLx (thanks to Tobias Fröschle) runs well and with handy speed. In addition to the software part, I’ve started to make some hardware for the Pi, 1st project completed is a custom case for the PCB made out of LEGO bricks. Long story short, there are a few videos on those topics on my YouTube channel <http://www.youtube.com/>

[QLvsJaguar](#) “

## **Retrofit mICE from Eidersoft / PS2 mouse Adapter**

Detlef Obermann wrote on QL Forum:

“Just a short time ago, a not working mICE ROM dongle with mouse form Eidersoft was send to be a friend for repair. The biggest part of the story is published in a German speaking forum (tlienhard), but this might be also useful for the English speaking QL world. The story ends up with a complete and working retrofit of the old Eidersoft ROM-Dongle and by the way an adapter which allows to use USB mices (with PS2 compatability mode) at this interface. All project details are in the added WORD doc, including the repair of the original EIDERSOFT mouse. The files is split into 3 parts due to board restrictions.

The schematic and layout has been build and tested by a couple of users.

This ROM dongle also works with the older, but cursor key driven ICE 1.12 ROM, so no mouse is needed.

Copyright of my part (PS/2 Adapter) is Detlef Obermann, but free for non commercial use !”

The Word documents he refers to are available from QL Forum at <http://www.qlforum.co.uk/viewtopic.php?f=2&t=568>

## **WIN-DOS**

A new program to let you read and set the paths of WIN and DOS devices in QPC2. It also allows you to rename WIN media (the name you see when you do DIR WIN1\_ for example). The

program also shows the free and total number of sectors and megabyte values so you can check the available capacity on all media.

The program is only meant to run on QPC2 and needs a screen display width of at least 800 pixels wide.

It is available to download free of charge from the Files page on my website at [www.dilwyn.me.uk/files/index.html](http://www.dilwyn.me.uk/files/index.html)



## TURBO PART 1

**GEORGE GWILT**

In September 1987, after reading an article in QL World I bought Turbo v1.13 in preference to Q\_Liberator v3.11. Both these programs were designed to compile SuperBASIC programs into executable, machine code, programs. The two main advantages are the faster speed of the compiled program and its ability to be run in the QL alongside any number of other executable programs.

Turbo consists of three parts, Parser\_Task, Codegen\_Task and Turbo TK Code. The first two of these perform the actual

compilation and the last contains SuperBASIC extensions which have to be loaded before the compilation.

Some years later, in December 1999, I was surprised to read the following words by Mark Knight in QUANTA on the release By Chas Dillon of the source code for Turbo and The Editor.

I am already working on Editor and will be mobilising my team to get Turbo working on new platforms. Both George Gwilt and David Gilham will be doing programming for a new version of Turbo while I am working on Editor.

At that stage Turbo was at version 3.40 and Turbo TK code at 3.27. I was flattered to be considered part of Mark's team. It transpired that I was to be responsible mainly for Turbo itself while David Gilham took responsibility for Turbo TK Code. As a result of our work the versions now are at 5.07 for Turbo and 3.40 for TK Code. So what difference did it make to Turbo?

## Starting Turbo

Let's look first at how you operate Turbo. Probably the most common way of starting it up is to type CHARGE. This causes Parser\_Task to run, producing intermediate code from the S\*BASIC program and then, if there are no mistakes, Codegen\_Task, which turns the intermediate code into an executable program.

In addition to the S\*BASIC instructions themselves Parser\_Task needs to know the answers to several questions before starting its job. These questions are such as "What is the name of the output file?" and "How many open screen channels must be set up?".

## QUANTA Magazine

There are three ways of answering these questions.

The first is by configuring Parser\_Task. This used to require running a program specially written to do this. One of the changes which has been made to Turbo was to add a standard Config Block so that MenuConfig could be used to set the items.

The second is by putting commands such as TURBO\_repfil at the start of the S\*BASIC program. These commands, which are part of Turbo TK Code, override the default values set in the Config Block.

The third is by using the front panel which appears when CHARGE has loaded Parser\_Task. This panel shows the values set so far by the first two methods and allows the user to alter these again as he wishes. An example of this panel is given here.



There are one or two changes here. The box at the left in the third last row allows the program's stack size as well as its dataspace to be set. Pressing SPACE will cause the contents of the box to toggle between "Object data" and "Stack size", as shown on the next image.

# RWAP Software

We have been working hard to safeguard the future of the Sinclair QL through creating an online QL Wiki backed by a repository of QL titles.

The QL Wiki enables people to see what software and hardware was produced for the Sinclair QL. The repository enables people to purchase working copies when their microdrive cartridges fail, or they move onto disks or emulators. Where we can, we obtain permission from the copyright holders to re-release items on the market.

This has enabled us to bring some of the titles back to the market as well as re-ignite interest in the Sinclair QL and its emulators.

Old favourites brought back to life include:

E.V.A., Vroom  
Black Knight, Double Block  
Jungle Eddi, The Lost Pharaoh  
Pengi, the Lonely Joker  
Microdeal's Flight Simulator, QL Hopper, The King,  
Night Nurse and Cuthbert in Space  
Mortville Manor, Darkside of the Moon (£10)

We still retain our existing catalogue, including:

Open Golf, Return to Eden,  
Stone Raider II, The Prawn,  
Hoverzone, Lost Kingdom of Zkul,  
Deathstrike, Horrorday,  
Flightdeck and QWord

All games are available on disk or for use with Q-emuLator on the PC **from ONLY £5 each**

Microdrive versions also available - from £10 each.  
*Memory / system limits may apply - please check before ordering.*

Visit the QL Wiki for more details on software, books and hardware for the Sinclair QL:

[www.rwapadventures.com/ql\\_wiki](http://www.rwapadventures.com/ql_wiki)

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Vroom by Pyramide



E.V.A by Westwey



Mortville Manor by Pyramide



Double Block by Francois Lancault



Night Nurse by Microdeal





The allowable sizes of various items have been increased. The maximum dataspace has been increased from 600K to 9999K. The size of Turbo's buffer now can be set as high as 9999K, while the maximum stack size is 9998K. Also, the maximum number of windows allowed has been increased from 16 to 32.

The final change in the front panel concerns the bottom left box. This used to allow the user to declare Turbo resident. This was intended to save time when a user wanted to compile more than one program at a sitting. When Turbo was held on microdrives, it would take an appreciable time to load. By using the residency option, Turbo, once loaded, was left in ram. This seems no longer a requirement, certainly with machines using floppy disks or hard drives. The box now has three possible states, "Manual", "Auto" and "Quit now?". When the front panel first appears after CHARGE, "Manual" appears in the box. The programmer can toggle between that and "Quit now?". If the latter is selected, by pressing ENTER, Turbo stops after a number of seconds, though the time can be shortened by the press of any key.

If Turbo is started by CHARGE followed by a forward slash, the front panel is bypassed and Parser\_Task starts immediately. However, if faulty information is set up by the defaults combined with the TURBO\_ commands in the program, the front panel

appears, so that the programmer can correct the fault. In that case the bottom left box would read "Auto".

### Pointer Environment

When Turbo was written there was no Pointer Environment (PE). Anything written to the screen remained until overwritten by something else. Turbo took advantage of that. However, with PE loaded, any program, PE or not, ceasing would have its windows closed. Changes have been made in Turbo to allow for this. Thus, when Parser\_Task has finished its job, the result is displayed at the top of its window. To allow the user to see this before it disappears, cessation is delayed. Pressing any key ends this delay. The same is true for Codegen\_Task and, indeed, also for any compiled program if it ends with an error message.

### Finally

I have shown here changes in the way Turbo is operated. I hope to deal in future articles with the various corrections, enhancements and new features that have made Turbo what it is now.

If you have any comments, suggestions or replies on this article or anything else you see in the QUANTA magazine then email: [editor@quanta.org.uk](mailto:editor@quanta.org.uk) Ed.)

### **COMMENT**

**BOB SPELTEN**

**T**he article in the last magazine prompted for a speed test on a RasPi 512B.  
So I repeated the test on mine with SMSQmulator, which is

very slow as the numbers already indicate.

It's v1.20 running under Rapsbian with OpenJDK-7-jre and a bare boot.

The original test with NEXT, came to 1944 secs.

The amended test with END FOR, came to 1971 secs.

A third test with inline FOR, no NEXT or END, took 1966 secs.

The differences are comparable to what was published.

The times seem a bit better than for the 256B but is that down to the RAM size or is it Java?

The differences between IcedTea-6 and Java7-SoftFloat are significant. Is that because of the simplicity of the test or a misprint?

I have searched for info on the best Java for the RasPi but haven't found the answer yet so I just picked one. I am no expert on Linux, let alone Java. uQLx seems quite fast in comparison so I may give it a try when an easy install becomes available.

My normal SMSQ/m boot (mode 32, full PE, 10 secs on my Vista/QPC2) takes about 10 minutes to complete.

At some point an error is reported in my Terminal (illegal instruction \$42c0 at \$22b45c, the address may change) but SMSQ/m keeps on running.

It is too slow to be practical but was helpful anyway in finding a bug in SMSQ/m because everything ran so slow I could pinpoint the moment of failure with SuQcess.

As a reminder, here is the simple speed test, you can test your own QL or QL system with, let us know your findings (Ed.)

```
1 PRINT DATE$
5 a=0
10 FOR n=1 TO 30000
15 a=a+n
20 a=a-n
30 NEXT n
40 PRINT DATE$
```

## COLOUR TWO

LEE PRIVETT

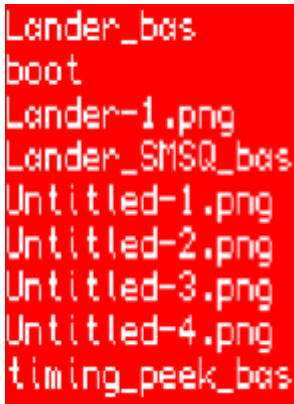
---

**T**his article as an addendum to an earlier QUANTA magazine issue covering pixel and screen resolution entitled 'QUANTA ELECTRONIC READING'.

For those of you (and I include myself in this) who use Q-emuLator and may have noticed that occasionally when resizing the window (in the Windows™ version at least) the resolution seems to go a bit haywire. This is dependant on a number of factors, including the screen resolution and aspect ratio your display has.

The displayed text randomly appears with pixels of different heights and widths apparently distorted. The following tries to describe why this occurs and although I will be referring to image stretching, this equally applies to a certain extent, to the normal

resizing of windows within the operating system.



```
Lander_bos
boot
Lander-1.png
Lander_SMSQ_bos
Untitled-1.png
Untitled-2.png
Untitled-3.png
Untitled-4.png
timing_peek_bos
```



Note in the left side of the image how the height of the top two lines of the letter 'e' is thinner than the bottom line. The vertical lines of the 'i' and 't' is significantly different in width yet all data for the characters on screen are one pixel lines.

The reason for this is not necessarily the fault of the emulator, but of how limited or restricted the graphics are regarding bitmapped images and how they are dealt with, especially in being displayed on screens of differing resolutions. Its is influenced by the number of colours available, which I intend to show later.

In any emulation the QL standard screen of 512x256 is stretched to fit a larger resolution screen, each data pixel is considered as part of an algorithm as to its new allocation of screen pixels and extra screen space is given or not.

If you stretch 512x256 to 1024x512 that's an easy mathematical process as everything is doubled and the size of each pixel is double the original size, therefore there would be no subjective difference in how it looks on the screen.

Now this can all get a bit confusing, so the following is an example of how this can affect just a small portion of the QL screen (multiply this up and you start to get an idea of how distortions can occur).



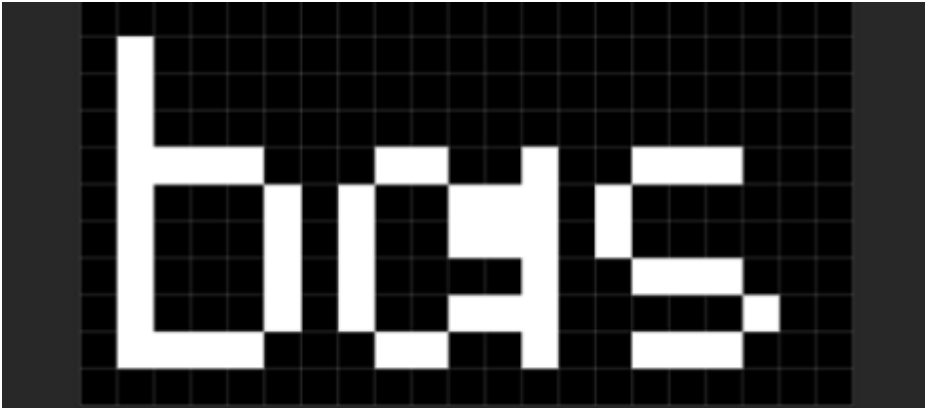
Here we have a screen representation of the pixels around the characters 'bas', each character is 5 pixels wide plus the space pixel (total of 6). The width of the image is 20 pixels (we are not concerned with the height at this juncture but the process and effect are the same).

If we were to stretch the width of the image from 20 pixels to 21 pixels, what would happen? Depending on the algorithm of course, but the effect is that there would be an extra vertical line of data that didn't exist before.

The algorithm does its best at not disturbing the image for clarity and quality, but it does not know the image is text (we do obviously).

The algorithm just treats this as an image and extrapolates the data within the confines of the format of the image, in this case I

indexed the colours available as black or white and the result is now shown in the next image.



The additional vertical line of pixel data has extended the letter 'a' just to the left of the midline stem.

Don't forget we are looking at a much expanded view of the image, however just by increasing the image by one pixel in width we already see a distortion taking place. This is unavoidable and even with the best algorithm in place it will never be technically perfect.

The frustration occurs when aesthetically (you start to notice these differences at the images original size) the image becomes a distraction, however if when expanding or stretching windows the aspect ratio is kept the same, this distortion can be kept to a minimum.

Sometimes when stretching, the image can improve or become worse, this would then be a matter of personal preference.

Stretching the same *original* image to 25 pixels has the following effect shown thus.

# QL Today Volume 17

The last chance to place your order for QL Today Volume 17!

QL Today will end with issue 4 of volume 17. We plan to add a DVD with PDF versions of volume 16 and 17 of QL Today plus bonus material. The issue will be printed and shipped in September, so the latest date to place your order is the 30st of August 2013. We have reduced the price as all issues will be shipped in one go (much heavier letter, but still cheaper).

You can place your order online through an SSL protected order form on [SMSQ.J-M-S.com](http://SMSQ.J-M-S.com)

Readers living in Germany	EUR 26.90
Readers living in Europe	EUR 28.90
Readers living in rest of World	EUR 32.90

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We are glad that we managed to provide 17 years of (hopefully) interesting QL magazines and would like to thank all our readers and authors for their support.

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# JOCHEM MERZ SOFTWARE

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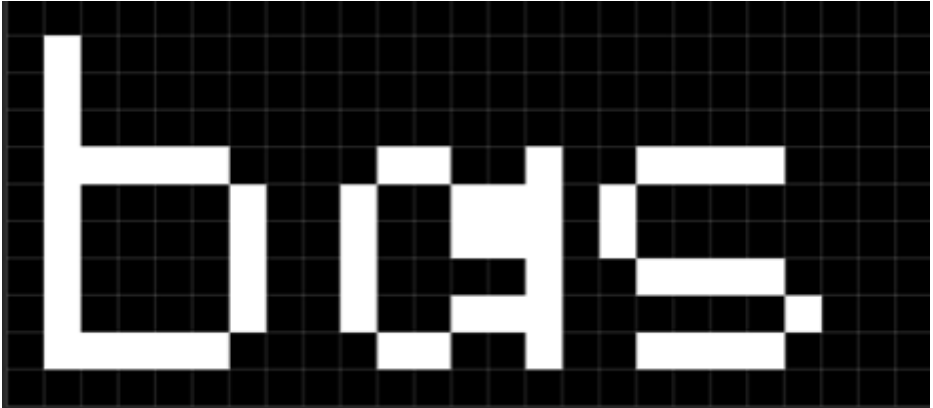
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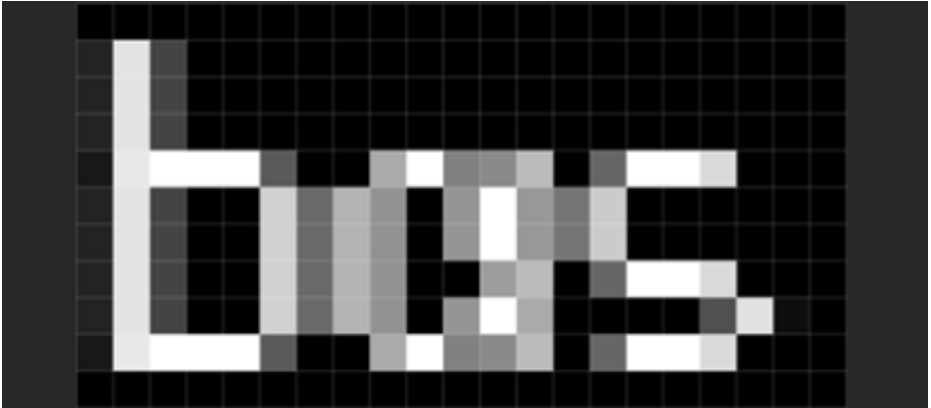
The letter 'a' remains the same with the additional line of pixels, however the letters 'b' and 's' have also added vertical lines affecting their width, all three letters are now six pixels wide.

There is also an addition line of black pixels between 'b' & 'a' and after 's'. The effect is quite arbitrary, the algorithm cares not for the letters, only equal distribution of pixels, sometimes this is even, more often it is not.



The original QL only dealt with 4 colours or 8 colours. So the range and effect was limited, although the technical stretching of the data pixels within the confines of the QL screen of 512x256 is technically possible.

However if we increase our horizons a bit, the effect can be quite dramatic.

Keeping the two colours of black and white but expanding the pixel depth (i.e. a range of grey scales between black and white), the effect of stretching the *original* image width by one pixel, is shown thus.



Here we see a range of grey pixels apparently scattered across and in some circumstances obliterating the original black or white pixels.

What we must remember of course is that this is a zoomed in view and not how it would appear on the screen at 100% (instead of the 3200% depicted above), the original image looks like this [  ] and that the above image looks like this [  ].

Now some of you are probably saying “I cant tell the difference” or “one looks better than the other”, suffice to say its how the images appear on the screen in a computer system and not how they appear in this magazine (electronic or paper). I can only show you how they are appearing by making screen shots. Once they are manipulated or resized, artefacts appear and distortions occur.

A one minute break about Bitmapped and Vector graphics for a moment. In my other role as a lecturer in IT, I am frequently dumbfounded by the opinions of school kids trying to further their education through the Academies and Colleges of this world and their knowledge of what graphics are (this is not in a good way just

in case you thought it was so).

Anyway as a refresher, one stores information about every pixel displayed on the screen, the other (vector) follows a set of instructions and draws (switches on) pixels on the screen. Both bitmapped and vector have their part to play and the BBC bitesize has a good comparison chart here:

<http://www.bbc.co.uk/schools/gcsebitesize/dida/graphics/bitmapvectorrev3.shtml>.

At the end of the day though, they still switch on pixels displayed on a screen, it's the method however, that achieves that which is different. Neatly this brings us on to colour and why it is not just image that improves with the use of colour.

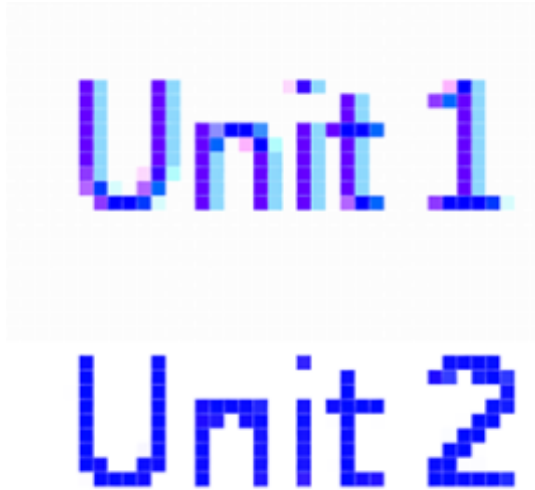
By increasing the range of colours available to the computer system, text can be displayed with clarity on an ever increasing resolution display. Using the example of the image below, this is text originally taken from a PDF document via a screen shot.

Unit 1 is as is, whereas Unit 2 has been converted to one colour.

Unit 1

Unit 2

Hopefully you should be able to discern that Unit 2 lacks a little finesse, although quite easily readable in its present form, you should be able to notice a little raggedness around the edges. Now to see more detail and as before down to individual pixel level, the following is a zoomed in version of this image.



For the benefit of those looking at the paper version of the magazine, the text is blue, originally H0000FF to be precise. Unit 1 has some turquoise and mauve pixels surrounding it, and at varying shades of those colours, quite complex. Unit 2, for comparison is just plain blue throughout and how text would appear on a standard QL screen for example.

Now remember ‘Unit 1’ not a stretched image, this is text as it supposed to appear on the screen, yet different colours are being used. I don’t profess to know the answers only the observations. It may be all part of the digital representation of the analogue world around us. Oops! I accidentally switched on the philosophical, I must stop watching all those science fiction programmes. Suffice to say our brains appear to deal with these minute variations and as such make the image (text in this case) aesthetic to see.

Below is a screen shot of what the “Save for the Web” dialog in Photoshop (CS6) looks like, there are many options that allow you to configure the image format from the respect to colour, quality

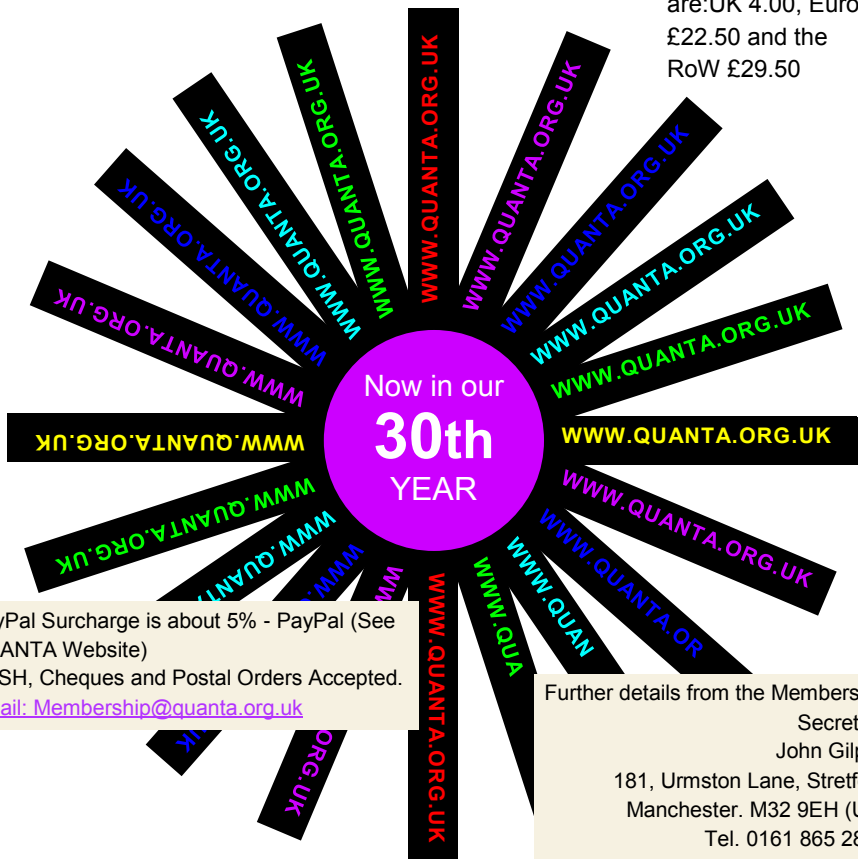
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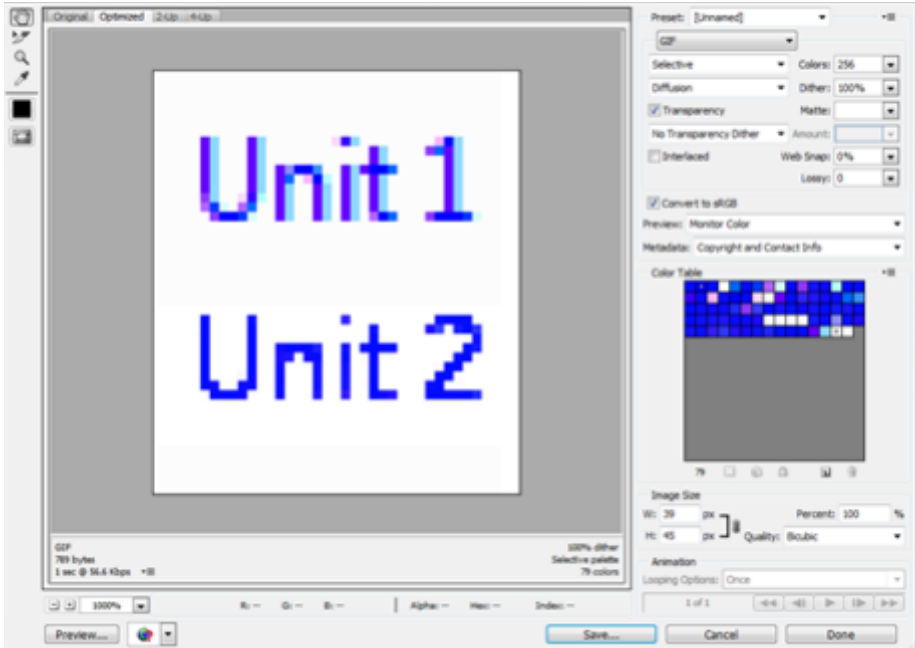
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and actual file size of which is depicted at the bottom left of the screen image. To the right is the colour table showing all the different colours of blue, white, mauve and turquoise used in the image/text and hopefully gives an indication as to why. Note the magnification of the image is at 1000%



This article has attempted to explain a little of ‘what and why’ increasing the colour range and resolution of QL based systems gives more than just a benefit to greater detailed pictures displayed on the screen. Additionally the images used in programs displaying text or even angled and curved lines appear as they should be and not just a stepped emulation.

Perhaps this just might inspire a few of you to do something new or something completely different [Monty Python theme tune now starts].

**M**embers wishing to submit helpline requests via email can use the email address [helpline@quanta.org.uk](mailto:helpline@quanta.org.uk) or if you prefer to use traditional post, please send the helpline request to me via the address printed inside the front cover of the newsletter.

We cannot guarantee to answer every query we receive, but we will do our best! Where we have been unable to answer the QUANTA Magazine queries, we may print the help request as an open request in the newsletter to ask if any of the readers can come up with a solution. And, of course, if readers feel that they have a better solution than we came up with, or would like to correct any errors we make, please write to us!

Q. How can I rename the medium name of some of my QXL.WIN files to something more meaningful than something like 'WIN2'? As I keep my fonts, documents and graphics in separate QXL.WIN files, and reassign the various WIN drives depending on which I need to use, it would be handy if a name such as FONTS or DOCUMENTS or GRAPHICS could appear when I use a DIR command.

A. Upon receiving this query, I set about writing a program called WINDOS (see News column) to do this very task.

After writing it, I realised I was reinventing the wheel a little, since Per Witte has also written a program called QWIRC (QL Winchester Rename Console) which can do similar functions in a smaller display outline. Both programs are available to download from my website, and Qwirc v0.66 is also available from the Marcel Kilgus website [www.kilgus.net/qpc/downloads.html](http://www.kilgus.net/qpc/downloads.html)



I'll try to explain here how you can write your own code to achieve this, although be warned - this involves direct sector access to write directly to the control structures of a QXL.WIN and it is VERY easy to destroy a QXL.WIN by making simple mistakes, so NEVER try this without making a backup copy of the QXL.WIN first. This is easy with a QXL.WIN, just create a folder in Windows called something like C:\backup and right-drag a copy of the QXL.WIN into there (hold down the right mouse button in Windows while dragging the selected QXL.WIN until the name being dragged is over the backup folder and let go of the button, a small Windows menu appears asking if you want to Move or Copy the QXL.WIN here, select COPY of course).

When you use a FORMAT command to create a QXL.WIN file, it only allows you to specify a capacity figure, not a name. It automatically formats the device with a name based on the name WIN and drive number, so if it was WIN1\_, it would usually end up with a name like 'WIN1'.

The QXL.WIN medium name is held in the first sector of a QXL.WIN file on the PC hard disk. To know how to change the name, we need to know the format of the relevant part of this first sector of the QXL.WIN.

The first four bytes hold the letters "QLWA". This is followed by a word value, holding the length of the medium name, followed by up to 20 bytes of a medium name.

DC.B	"QLWA"
DS.W	1 ;name_length
DS.B	20 ;characters of name

This is the part we need to modify and to do this we need to use direct sector access to fetch a copy of the first sector. Then we patch the name length and characters as required. The name, although it has a word length count, can only be up to 20 characters long. Indeed, as a DIR command only shows the first ten, and even the DMEDIUM\_NAME\$ function also only fetches up to 10 characters, it is probably more practical to limit the name to a maximum of ten characters.

Direct Sector Access on the QL is normally used to read or write specified sectors of a floppy disk or hard disk. Even if you know what you are doing, it is only too easy to accidentally destroy the medium so always make a backup copy first!

To use direct sector access, we open a special file on a disk or hard disk, called "\*d2d". The letter d at the end can be d, h, or e depending on the density of the disk (h or H stand for High Density, while e or E stand for Extra High Density or an ED disk. For a QXL.WIN we typically use "\*d2d".

The '2' stands for 512 byte sectors, and would be changed to '3' for 1024 byte sectors and 4 for 2048 byte sectors.

First, we open a channel to the QXL.WIN (which we'll assume in this case is a temporary test copy set up as WIN8\_).

```
OPEN #3, 'win8_*d2d'
```

Note that since it contains a '\*' character the filename needs to be in single or double quotes.

Next we fetch the first sector:

```
GET #3,sector$
```

We use GET rather than INPUT since the sector may contain linefeed characters which might prevent INPUT getting the entire sector, even if INPUT knew where to stop reading the sector!

The string called sector\$ now contains a copy of the first sector of the QXL.WIN. By looking at the 5th and 6th character of the string, we can see how long the name will be - as it can not be longer than 20 characters we can disregard the high byte and only look at the sixth character:

```
namelen = CODE(sector$(6))
```

If you want to be stricter about this you could evaluate the full word value:

```
namelen = (256*CODE(sector$(5)))+CODE  
(sector$(6))
```

Now, we can extract the existing name, starting from the seventh character of sector\$:

```
name$ = sector$(7 to 7+namelen-1)  
PRINT name$
```

We can check this using the DMEDIUM\_NAME\$ function, which takes either a channel number of an open file or a backslashed drive name as its parameter:

## QUANTA Magazine

Note that the channel number opened above should be closed before using DMEDIUM\_NAME\$.

```
PRINT DMEDIUM_NAME$(\win8_)
```

This should print the same name as held in name\$ above. What it may do differently is only show the first ten characters if the name happens to be longer than ten characters in length.

So, to change the name, what we need to do is to alter the name details within sector\$, update the name length part, and write it back out to disk to replace the original value, by resetting the file pointer to the start of the file before writing a new updated copy of sector\$. Let us change the medium name of Win8\_ to 'QUANTA'

```
LET new_name$ = 'QUANTA'  
LET namelen = LEN(new_name$)  
LET sector$(6) = CHR$(namelen)  
LET sector$(7 TO 7+namelen-1) = new_name$  
PUT #3\0,sector$  
CLOSE #3
```

The “\0” after #3 in the PUT command simply resets the file pointer to the start of the file, to make sure sector\$ is written out to the correct location. And we must remember to close the channel afterward!!!

After closing the '\*d2d' file, we can check if we were successful simply by issuing a DIR WIN8\_

```
QUANTA QDOS  
1234/20480 sectors
```

Hopefully, if you were using a Quanta Library CD copied onto your hard drive, it will now be called QUANTA to help you identify it!

I can't emphasise enough that we are writing to the actual structure of a QXL.WIN here and a mistake such as forgetting to position the file pointer correctly may well result in the destruction of your QXL.WIN - always make sure you keep a backup copy before embarking on this! After all, we write to the wrong place in a document, we damage that one document. We write to the wrong place in a QXL.WIN we may well damage all your files beyond repair!

Q. We keep getting told to make backup copies of our files. It's easy enough to copy floppy disks. Is there a proper backup program for QL hard disk systems?

A. Define "proper"! That said, there are plenty of hard disk backup programs for a QL available from my website at [www.dilwyn.me.uk/backup/index.html](http://www.dilwyn.me.uk/backup/index.html)

Some so-called backup programs are actually whole-disk copiers (e.g. my program called The Copier). More advanced copiers such as Norman Dunbar's Winback will look at the file dates to see if the backup medium already contains an up-to-date copy, so we don't need to make an extra copy, we can save time by skipping files which haven't been altered since the backup was made. This is called an Incremental Backup, so called because we only make backups by increment, i.e. updating the backup only when a new file is discovered or when we detect that a file has been changed since it was originally backed up. In other words, if there's already

a suitable backup, don't bother trying to make another. Why copy all 1,000 files when only two or three have changed?

To some extent, the QPAC 2 file menu can do this. It has both a COPY and BACKUP command. The difference is that BACKUP will only copy a file if there is a more recent version than in the destination directory. Fairly basic backup, but sometimes good enough.

Of course, if your "QL" is an emulator which uses a QXL.WIN it is even easier than this. Just use Windows to copy the QXL.WIN, since a QXL.WIN is just one single very large file as far as Windows is concerned. So to make a complete backup in one step, just copy and paste the QXL.WIN to make a backup copy in another folder or better still on an external hard disk drive!

If you use an emulator which uses a native file access mode to store QL files on the computer's native format hard disk, make sure you copy the entire folder, not just the individual QL files, as some emulators store the QL file headers in a separate (sometimes hidden) file within the master folder. Loss of these file header information blocks can mean that executable programs, for example, may suddenly start giving "bad parameter" errors when you try to execute them. It is then a bit of an expert job to try to restore these file headers.

It is always better to make a backup onto a physically separate medium and ideally store it in a different location. That way, if some major issue such as theft or fire occurs, you may have lost your computer but still have your files, which are usually harder to replace than a computer!

Q. So what's the difference between SFA and NFA drives in SMSQmulator?

A. QL file headers. SMSQmulator modifies QL executables in a similar way to QemuLator to save them in the SFA (SMS File Access) drives, while the NFA drives are just for accessing the Windows, Mac or Linux drives to transfer files, without modifying the executables. Think of SFA as QL drives, while NFA are non-QL drives.

Q. In the Q-Liberator manual it mentions that a BASIC program can be compiled from either a QSAVE file or from a Work File. What's the difference?

A. In essence, none. Q-Liberator can't compile from an un-tokenised BASIC program, only from a tokenised version of the program, such as the QSAVE or `_wrk` files which are almost the same. A `_wrk` file is generated by the first pass of the compiler from the BASIC program in memory when you enter the command LIBERATE 'filename'. The later pass of the compiler creates the compiled program from one of these 'intermediate' files, e.g. when you use the command LIBERATE 'filename', (note the comma after the 'filename').

## **KEYBOARD REVIEW**

**DILWYN JONES**

---

**I**t feels odd to be reviewing a keyboard in a QL magazine, but this one has proved to be so different and so useful with the little netbook PC I use mainly as a QPC system that I thought it worth writing about it.

The story starts with my Zoostorm netbook computer. Nothing really wrong with its keyboard, other than my fat fingers, I just fancied a slightly larger keyboard when I use the netbook at home to make typing a little more comfortable, and it gives me a little more flexibility in positioning the keyboard on my lap or a little further from the screen when I plug a larger monitor into the netbook for use at home. I hoped to find a sufficiently compact keyboard without a numeric keypad which I could carry around with the netbook PC, but which was a bit more comfortable to use than the netbook's own keyboard.

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Why a bad keyboard membrae could change your whole career strategy!





By a happy coincidence, while I was contemplating this, an email arrived from a company called eBuyer offering discounted deals on various computer bits and pieces. While browsing their website to see if there was anything else I might want to buy, I spotted that they sold compact keyboards. While really intended for use with tablet PCs and in some cases mobile phones, some of these were smaller even than the original netbook, or had prices I couldn't justify paying.

One low cost compact keyboard caught my eye. The website has user-reviews available on it and this keyboard seemed to have mostly good reviews for a product of this cost. The keyboard concerned is a mere 283 x 122 mm in size, just a few millimetres deep at the front, 21mm at the back and is a basic 80 key keyboard, meaning it has no numeric keypad, and none of the 'extra' keys such as Home, End, PageUp, Page Down, AltGr and Scroll Lock. No numeric keypad either. In all, it is just 62% of the width of the keyboard of my desktop PC.

As far as I was concerned, nice and simple, ideal for use as a compact "QL" keyboard. Less suitable for business use perhaps.,

## QUANTA Magazine

as it lacks some of the extra keys of a 102 key keyboard. Clearly it's designed for use with Windows (it has a Windows logo key) and the packaging says it's for use with anything from Windows 95 onward. Works fine with Windows 7 on my computer.



*The keyboard in front of the netbook (which has a 10 inch screen)*

A user review on the eBuyer website says it works fine with Raspberry Pi too. The keyboard has a Mac-style Fn key (which I couldn't get to work on a Windows system), implying it might work on Mac systems too although I was unable to verify that in time for the publication deadline.

It's a USB keyboard and plugged into the Windows 7 computer, it was recognised immediately and was ready for use after a few seconds, once Windows had finished setting up the drivers. On this computer, both the external and built in keyboard seemed to operate in parallel – I could type on either with no apparent ill effects.

At some point I must look into whether there are system options to allow only one to be used at a time, although I can't really see it being an issue. The keyboard needs no batteries, it takes its power from the USB port.

It works fine through a USB hub as long as you don't overload the power available to be drawn when multiple devices are plugged into the USB ports, e.g. using a 4-way hub with 2 USB pen drives plugged in as well as charging my phone from USB, this keyboard stopped working, although it started working again if I used the power adaptor for the USB hub.

In QPC it works as a UK (type 44) keyboard. It has a UK Pound symbol in the usual place on the '3' key and a 'Euro' character on the '4' key, accessed using Ctrl-Alt-4 from Windows", then in the usual way for keyboards with this character. Euro character in SMSQ/E is Ctrl-Shift U.

All the QL keys seem to be in the usual place, with backspace doubling up as Ctrl-Left and Del as Ctrl-Right to delete characters. The usual potential trouble spots of '@' and "" characters getting swapped didn't occur, and no problems with other "usual suspects" like the hash key either. In short, with QPC2 configured for UK keyboard it just worked first time. That's what I like.

The PrtScr key registered in QPC2 as an asterisk (like Shift-8) and

the Insert key gave a code of 252, like Shift Space on a QL keyboard (the QL manual refers to it as the “special space” character). Neither key returned a specific key code in Q-emuLator.

F11 and F12 function keys don't seem to return a key code in QPC2, although in Q-emuLator the F11 key toggles the inbuilt debugger, while F12 toggles full screen mode as intended. There is a key labelled 'Fn' and so far I have not been able to find what it does.

The same key on the computer's own keyboard provides functions labelled in a different colour on its keyboard, such as turn wireless off or on, change speaker volume and screen brightness, but these functions don't seem to be replicated on this keyboard, unless I've missed something, or perhaps it's only intended for use with some computers such as Macs which may have a dedicated Fn key which works in a different way to the Fn key on Windows laptops.

The keyboard has no built in legs, rather it is a simple moulded step at the back which puts the keyboard at a comfortable angle where the back is about 12mm higher than the front.

There's no option to tilt the netbook's own keyboard unless you wedge a book or something under it, so this is a nice comfortable typing angle for me. The keyboard has rubber feet under the keyboard front and back, which provide a good grip on most surfaces to stop it sliding.

The keys themselves are not like most conventional keyboards, in that they are simply raised moving squares with only a small bevelling on the edges. The letter keys are about 15mm square

like most keyboards.



They have a positive gentle click action, somewhat reminiscent of the rubberised ZX Spectrum keyboard, but with a much more positive typing action and that gentle slightly rubbery sounding clicking action, almost silent if you type gently, although can get a little noisier with vigorous typing.

Had someone described the feel and action of this keyboard to me like this I wouldn't have thought I'd have liked it, but I really do like it for a low cost keyboard like this. I'm a traditional two fingered typist and can get a good turn of speed (by my standards) on this keyboard, faster and fewer errors than the netbook keyboard. The keys are about the same size on this keyboard as on the netbook, but more widely spaced which I already prefer after less than a week of use. The F and J keys have the 'touch' strips on them which I think are for touch typists, it would be interesting to see what a trained touch typist thinks of this keyboard.

The Enter key is not the usual shape for this key – it is rectangular, the same height as other keys and a little over twice the width of the letter keys.

This is not too bad, but of course if you are used to an Enter key which is taller than the other keys, you may find yourself accidentally typing a hash '#' character as that is above Enter, where the upper half of larger Enter keys can usually be found.



The colour contrast on the keys is quite good – white lettering on matt black keys with good sized, well formed characters. The keyboard comes with about 150cm (60 inches) of cable. This is not coiled, so leaves a fair bit of slack when the computer is near, but does enable it to reach a desktop base unit if that is on a shelf below the desk, for example. I have slight concerns about where the cable enters the keyboard body (on the right hand side near the back) – it passes through a drilled hole which has not been smoothed, so as I am going to be using this as a mobile keyboard, it will be interesting to see if this produces any wear on the cable at the point of entry. There is a gap under the keyboard thanks to the raised rear edge, so if your plug in point is to the left of the keyboard, it is quite easy to run the cable under the keyboard

towards the left – there's enough cable length in most cases that this shouldn't prevent it reaching its destination.

The keyboard has no caps lock indicator etc, so in Windows the best way around this is to go into the accessibility settings within the Control Panel (called Ease Of Access in some versions of Windows) and tell Windows to set a sound for Toggle Keys, so that it will issue a high or low beep to indicate if Caps Lock is on or off. There are plenty of free Caps Lock indicator programs available for QL too.

There isn't much more which can be said about a keyboard like this except perhaps to summarise the pros and cons:

### **Pros:**

- Compact and low cost
- Good length of cable
- Attractive matt black design with good contrast of lettering
- Simple plug in and go USB operation on Windows, worked first time with QPC2 and Q-emuLator
- All keys in right place for use with QL emulators
- Positive key action for easy typing.
- 'Windows' key for use with Windows shortcuts.
- Angled keyboard (i.e. not flat)

### **Cons:**

- No numeric keypad or PageUp/PgDown/Home/End/Scroll Lock/AltGr keys
- Slightly rubbery feel to keyboard, although I didn't mind this, some might prefer a more solid feel to the keys
- Unable to get [Fn] key working on my Windows 7 netbook.
- Concern about cable entry point causing cable wear

Not possible to vary keyboard tilt angle

No Caps Lock indicator

Small cursor arrow keys, which are half the size of the letter keys

Smallish Enter key

The Xenta Wired Slim Chiclet Keyboard model SK-094 (as it's called on a label under the keyboard) or Xenta Super Compact Black Wired Keyboard (as it's referred to by eBuyer) costs just £3.50 (on special offer at the moment, normal price is £4.99) including VAT, but plus postage from [www.eBuyer.co.uk](http://www.eBuyer.co.uk), quickfind code 233153 on their website. There is also a wireless version which comes with a 2.4GHz nano (i.e. very small!) USB receiver at £5.99 (normal price £9.35), Quickfind code 233152.

Would I buy it again now that I have used it? You bet I would. It's a very compact, cut down, simplified keyboard so if you need a numeric keypad and the additional keys, it might not be suitable, but if like me you just need a compact external keyboard for use with a QL emulator on a netbook or laptop it's pretty good for the price.

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**NEXT ISSUE****LEE PRIVETT**

**I**n the October /November issue we have amongst our regular features a few programs for you to try out, SYNC\_BAS and TEMPLATE\_CREATOR\_BAS to name two, a program called FRIENDS, needed in time for xmas and could save you money on those all important personalised gifts, hopefully part 2 of the TURBO update from George Gwilt and a brief report on the last issue of "QL TODAY" magazine.



# The online QL community



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[www.qlforum.co.uk](http://www.qlforum.co.uk)

## SUBGROUP MEETINGS

**S**ubgroup meetings are where QUANTA members and non-QUANTA members get together to discuss, tinker and explore all things QL related. As we are now approaching the end of summer (ha!) the bank holiday may provide some more sunshine and much needed warmth. This might be a good opportunity to dust off those cobwebs and visit your local sub-group. There will always be plenty to talk about and a fresh face (new or old is always welcome). If there is not a sub-group near you why not hold one yourself? Contact the chairman on how to go about it, details on our contacts page (pg. 2). The subgroup list is currently two pages long with the sad absence of the West Midlands QL User Group again our best wishes go out to all and especially a continued recovery to Mike Bedford-White.

## QUANTA DORSET SUBGROUP – Dorset

**M**eetings are held, on the second Sunday of each month between 2.00pm and 5.00pm. For location please contact: John Mason - 01425 275894

## LONDON QL AND QUANTA GROUP

**M**eetings are held in the School Room, which is the basement of the Borough Welsh Congregational Chapel, 90, Southwark Bridge Road, London SE1. This is almost opposite the junction with Marshalsea Road, at the other end of which, 5 minutes walk away, is the Borough Underground Station. Free parking is easily available in Southwark Bridge Road for road users, Cyclists are welcome. Members currently each pay a subscription of £40 per year towards the cost of the hire of the hall and a small additional charge is made for tea/coffee - biscuits are then provided free.

Please bring your QL equipment if possible, all types welcome, e.g., PC portable running emulators. The Group has some systems stored at the venue for its use. In addition, there are lots of donated second user equipment, books, magazines, etc., available for purchase. Time: 2.00 pm. to 5.00 pm., on the second Sunday of the month. No meetings are

## QUANTA Magazine

held in December/January - winter break, or July/August –the summer break, giving 8 meetings a year. Malcolm Cadman 020 8691 5780 or email: [QL@mcad.demon.co.uk](mailto:QL@mcad.demon.co.uk)

### SOLENT SUBGROUP

**M**eetings are at 'Sarisbury Green Parish Rooms' ([http://sgpr.org.uk/?page\\_id=28](http://sgpr.org.uk/?page_id=28)) On the first Saturday each month from 1PM to 5PM. Contact Graham Evans 023 8040 3350 or send an email: [graham@grayfire.f9.co.uk](mailto:graham@grayfire.f9.co.uk)

### NEMQLUG - NORTH EAST MANCHESTER QL USER GROUP

**M**eetings are held at 181, Urmston Lane, Stretford, Manchester. M32 9EH (Near Junction 7 of M60 Motorway, which was Junction 7 M63 Motorway). Our informal meetings start at 7 pm. and finish at 11 pm. All welcome to our meetings which are held on the last Thursday of each month (except December). Contact John/ Sarah Gilpin 0161 865 2872 for further details. or by email: [thegilpins@btinternet.com](mailto:thegilpins@btinternet.com)

### SCOTTISH QL USERS GROUP

**S**QLUG meets at George Gwilt's home every second Sunday in the month. Please contact George Gwilt before coming, to get the location by email: [Gdqqler@gmail.com](mailto:Gdqqler@gmail.com)

### SURREY QUANTA SUBGROUP (SQSG)

**T**he group is currently trying other venues in the Leatherhead - Epsom area. If you plan to attend but do not get our emails, please phone or email Ken Bain for the latest location. Meetings are 8.00 to 10.00 pm on a Wednesday, hopefully last of each month (none in December), but this can vary. Contact Ken Bain 01932 347432 (to midnight), alternative email: [kenb@bcs.org.uk](mailto:kenb@bcs.org.uk)

### SUSSEX QL USER GROUP

**C**urrently without a meeting place, anyone interested should contact Roy Wood 01273 430501 or email: [gbranch@gbranch.demon.co.uk](mailto:gbranch@gbranch.demon.co.uk) or Keith Mitchell - 01903 742263.

**This issue a  
free Calendar  
month**

Often a chuckle to myself regarding the response to an apparent Eastender's conversation between Grant Mitchel and Phil Mitchel where Grant says 'How do you like your nuts?', and Phil's reply is 'sorted!'

**To key or  
not to key,  
that is the  
question!**

[editor@quanta.org.uk](mailto:editor@quanta.org.uk)

**EMAIL THE EDITOR  
NOW!**

## *September 2013*

Sun	Mon	Tue	We	Thu	Fri	Sat
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